

567—110.12(455B) Sealing abandoned wells and boreholes. Boreholes, piezometers and observation wells not used for groundwater monitoring must be sealed. Document in writing the location of the abandoned well or borehole with reference to the landfill's coordinate system and method of sealing. The document must be retained at the landfill with a copy sent to the department.

110.12(1) *Sealing boreholes.* Fill the borehole by extending a tremie tube to the bottom of the hole. Apply bentonite or expanding cement grout through the tube to the bottom of the hole and raise the tremie tube as the hole is filled from the bottom upward. Keep the end of the tremie tube submerged in the grout while filling. Fill the borehole from the base of the boring all the way to the ground surface.

110.12(2) *Sealing abandoned monitoring wells.*

a. Well is known to be constructed properly with impermeable grout that was installed from the bottom up using a tremie tube. Remove any existing protective metal casing by vertically pulling it off the well. Using a tremie tube, fill the inner well casing with an impermeable grout slurry from the bottom to ground surface. After 24 hours, retop the grout if it has settled below the existing ground surface.

b. Well construction is improper or undocumented. Attempt to remove the well casing. If this fails, either drill around the well casing using a hollow stem auger of large inside diameter or drill out the well casing using a standard casing bit or solid stem auger with a boring diameter greater than the initial diameter of the hole. Drill to the maximum depth of the previously drilled boring. Clean the drilling debris from the interior of the auger or borehole. Seal the borehole with an impermeable grout using a tremie tube. If the soil conditions permit the sealing to be conducted in a continuous operation, keep the tremie tube submerged in the grout at all times. After 24 hours, retop the grout if it has settled below the ground surface.

c. Monitoring wells in future fill areas. Remove well and seal as described in the procedures for sealing boreholes per 110.12(1).